

Arkwood, Inc., Superfund Site
DRAFT Comments on DRAFT Sampling Evaluation Report dated March 31, 2015

Item No.	Reference	EPA Comments for Discussion on May 19	PRP Response
1.	<p>Risk Evaluation of Analytical Data from Decision Unit Sampling</p> <p>General comment</p>	<p>The sample TEQ concentration was adjusted downward based on the amount of coarse (>2 mm) fraction that was removed from the sample. That adjustment is not appropriate since we are interested in the dioxin TEQ concentration in soil, and soil is the material <2 mm.</p> <p>The ITRC ISM guidance (http://www.itrcweb.org/ism-1/2_2_1_Microscale_Heterogeneity.html) states, “Commonly, the maximum grain size considered to still qualify as part of soil is 2 mm. (Section 2.2.1)”.</p> <p>The grain size of 2 mm is identified as a very course sand. The final selection of the appropriate maximum soil size should be based upon the expected complete exposure pathways. The primary exposure routes for exposure to dioxin in soil is ingestion and dermal contact. The soil concentration in the soil fines is what is expected to adhere to skin surface and inadvertently ingested. The soil exposure point concentration of interest is the concentration in the fine fraction.</p> <p>Additionally, a reference is made to the TRW Recommendations for Sampling and Analysis of Soil at Lead Sites (USEPA 2000) as a justification or confirmation of a practice to include coarse fraction in the results of the soil samples. The quoted information from the EPA 2000 guidance is taken out of context. The EPA guidance clearly points out that the fine fraction is the preferable fraction to use in evaluating risk from exposure to lead, and only when there is a reason to think that the coarse fraction contains a higher concentration of lead than the fine fraction (such</p>	

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		<p>as seen in mining facilities) should the coarse material be included in the analysis.</p> <p>Therefore, the non-adjusted TEQs soil concentrations should be used in making any risk evaluation or decision.</p>	
2.	<p>Risk Evaluation of Analytical Data from Decision Unit Sampling</p> <p>Adjustment of the TEQ Concentration for Percent of Coarse Materials</p> <p>Page 4</p>	<p>Soil samples collected from the site contained a significant fraction of coarse soil material. Particle sizes greater than 2 mm could not be analyzed. The document notes, "The issue of the appropriate particle size for the sampling had been previously discussed in a previous U.S. EPA comment by Deana Crumbling dated October 21, 2013 on the Conceptual Site Model and Proposed Decision Unit Plan report dated August 14, 2013."</p> <p>However, Deana's comment only dealt with choosing a target particle size based upon the exposure pathway and not what should be done if the sample exceeds this size. The ITRC ISM guidance (http://www.itrcweb.org/ism-1/2_2_Soil_Heterogeneity_and_Variation.html) states, "Commonly, the maximum grain size considered to still qualify as part of soil is 2 mm. (Section 2.2.1)".</p> <p>The grain size of 2 mm is identified as a very course sand. From an exposure perspective, one would expect that any receptor would be exposed to the entire soil sample. However, based upon the designation of 2 mm as soil and also as a course sand, it does not appear that considering soil particles greater than this amount as available for exposure. The primary exposure routes for exposure to dioxin in soil is ingestion and dermal contact. One would not expect a receptor to ingest a particle greater than 2 mm. For dermal contact, it is</p>	

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		<p>primarily from soil that contacts and remains on the skin. Soil particles greater than 2 mm are also not expected to remain on the skin for extended periods of time. As a result, the unadjusted concentrations should be used for any risk-based comparisons.</p>	
3.	<p>Risk Evaluation of Analytical Data from Decision Unit Sampling</p> <p>Calculation of Decision Unit Concentrations</p> <p>Page 5</p>	<p>The draft sampling evaluation report is defaulting to the max DU sample result if the UCL for the DU is higher than the max result (which usually it is). This is definitely not acceptable for data generated from incremental sampling (see Item 3 in EPA Comments on the Revised Conceptual Site Model, dated July 18, 2014). Either the mean of the SUs or the UCL on that mean should be used.</p>	
4.	<p>Risk Evaluation of Analytical Data from Decision Unit Sampling</p> <p>Calculation of Decision Unit Concentrations</p> <p>Page 5</p> <p>Table 4</p>	<p>When calculating the DU mean and UCL, the draft sampling evaluation report has used all results (including the ones from field and lab replicates) as if they were all independent SU results. But field and lab replicates are not independent SU results, and cannot be averaged together as if they were.</p> <p>The preferred way to handle replicates when calculating DU statistics is to use the first replicate result only. Under some circumstances, an argument can be made to average the replicates and use the average value as an SU result. EPA has calculated DU statistics using the first replicate result only.</p>	
5.	<p>Risk Evaluation of Analytical Data from Decision Unit Sampling</p>	<p>The draft sampling evaluation report has used the Chebyshev equation incorrectly, so that their Chebyshev UCLs are calculating out a bit lower than they should be.</p>	

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	<p>Calculation of Decision Unit Concentrations</p> <p>Page 5</p> <p>Table 4</p>		
6.	<p>Risk Evaluation of Analytical Data from Decision Unit Sampling</p> <p>Comparison to Soil Screening Levels</p> <p>Page 5</p>	<p>Unadjusted TEQ concentrations were detected above the 730 ppt from DU 5 and DU 7 which are beyond site boundary. Additionally, unadjusted TEQ concentrations were also detected above the 730 ppt in DU 1 and DU 6 which abut the site boundaries. As a result, it appears that dioxin contamination may have migrated beyond the site boundaries through either overland flow or past site use/dust. These areas are not owned or controlled by the PRP and the presence of dioxin beyond the site boundaries would result in a change to the site conceptual site model.</p>	
7.	<p>Risk Evaluation of Analytical Data from Decision Unit Sampling</p> <p>Comparison to Soil Screening Levels</p> <p>Page 5</p>	<p>The risk evaluation concludes, "This indicates that, under the current exposure conditions at the site, the PCDD/F concentrations in soil at these seven Decision Units do not pose a noncancer hazard." EPA agrees that the maintenance worker scenario correlates to a risk-based screening level of 12,100 ppt and that the <i>current</i> site use supports this conclusion.</p> <p>However, when determining site protectiveness, potential and/or anticipated site future use must also be taken into account. This is especially relevant in light of the landowner pursuing commercial/industrial reuse.</p> <p>Thus, please also provide a comparison and/or conclusion which correlates to the industrial/commercial worker scenario.</p>	